2005 White House Conference on Aging

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Well, I guess I am the oldest speaker today. [Laughter] I have worked 66 years to get up here, and while I will talk about specific technology, what I really want to do is talk on behalf of the IT sector. I think you have heard the issues we face, and I can put them in a different perspective. Retiring baby boomers will increase healthcare spending in this country to 20% of the GDP, up from 16%. The healthcare costs alone for an employee in the United States are more than the total loaded cost of an employee overseas. Because of this, it is a simple choice for companies to go overseas to hire that individual. We need to do something about the cost of healthcare in the United States. I would like to propose to you that technology will have the ability to lower healthcare costs while providing better care.

The number of seniors has the potential to double in the next 25 years and the ratio of workers to retirees will decrease from 5:1 to 3:1. The costs associated with supporting this age wave are astronomical under today's system, but the technology to improve the healthcare system and reduce costs is still immature.

I would like to use the analogy that today's healthcare system is a little bit like the mainframe computing industry of a few decades ago. You would kind of write a program, put it on a punch card, then trusted somebody to administer it correctly. It was an inefficient system with many opportunities for error. What transformed the computer industry was in fact personal computers and giving the individual control. Today, you can buy things, access almost any kind of information, and even communicate with your friends and loved ones using a PC and the internet. The PC has revolutionized our lives and made it easier and affordable to do tasks that once took longer and cost more. The PC has fundamentally changed how we live our lives and how we interact with the world around us; in doing so it has made information delivery more available, affordable and more personal.

Just imagine a healthcare system where personalized technology was regularly implemented. We could take the technology used in hospitals and use it in the home to ward off the unexpected onset of diseases, and to let seniors live in dignity in their own homes.

To put it another way, look at how your finances have been affected by the PC. Today you can manage all of your funds on a PC. You don't have to have a financial advisor to do that anymore. Imagine if you could just transpose the health system into this same format. You could access and manage your own healthcare files on your PC. The real issue here is creating a system that allows for personalized care, allows you to age in place in the comfort of your own home, and moves treatment from a generic mode to a personalized mode.

In my role as Chairman of Intel, I travel the world and have seen how other countries have implemented their healthcare. I specifically remember going to Chennai, India in 1998. I was there inaugurating a video conference system between doctors at the Children's Hospital in Chennai where they set up remote conferencing to extend their ability to care for children with heart disease and heart defects. I went back to India just last week. They are putting up a satellite system to enhance that sort of communication and also to enhance telemedicine throughout the country. The problem I see is that even though these doctors can collaborate internationally, in the United States, a doctor in California can't advise in Nevada or New York or Florida or anywhere else in the country. I was in South Africa a few weeks ago and telemedicine is a big deal there; unfortunately telemedicine not a deal here because rules and regulations get in the way.

What can you do with technology that is interesting? You can help prevent disease. One of the ways you do that is to entice people to exercise. You put a pedometer on them which has a wireless connection to a PC or some other monitor and you encourage them – as the president and the administration have done – to walk 10,000 steps, or four miles, a day. What this does is encourage people to exercise because you give them goals and let them monitor their performance in reaching those goals in a real-time fashion.

You can detect the onset of diseases or the worsening of diseases very simply with monitors and sensors. Today you can put sensors in the home and sense if individuals are walking around, if they are opening their refrigerator doors, if they are turning the stove on or off, if they are taking their medication, and what are they are doing on a daily basis. You can do this sensing from a remote standpoint so the caregivers, the rest of the family, can check up on their parents or their elders on a real-time basis.

You can use this for all sorts of monitoring, whether they are eating, whether they are exercising, or even for their social behavior. People who have memory problems often times don't want to answer the telephone because they are afraid they might not recognize the caller. They don't want to answer their door because they are afraid they might not recognize who comes to their door. What if you give them a very simple, enhanced call-monitoring system, which rather than just showing the number that is calling, shows them a picture, their relationship to the individual, and when they last spoke to that individual. This is very simple technology but it can have a huge impact. When an individual is given remote support, they interact in an active social way to give themselves a better lifestyle, which can be done simply with technology.

Technology can even help those living with chronic diseases. We can constantly monitor the patient and the status of their diseases. We can get an early warning or detection if the disease is worsening. Technology can tell if a patient's gait is getting better or worse on a daily basis. It

can tell if you are getting a good night's sleep or a restless night of sleep. It can even monitor your heartbeat and your breathing regularity.

All of these things are easily determined by sensors that we have today. These are very simple aspects of technology which are early in their development stage, but are not being applied for a variety of reasons which we will talk about in a few moments. However there are a number of companies who are actively investigating these technology advances; not just here in the US, but around the world.

There are a number of trends which are promoting the use of this technology. One of the trends is convergence, which is basically making user-friendly devices. User-friendly devices like cell phones which can double as a glucose monitoring system for diabetics which are being trialed in Korea today. They're not being trialed in the US because it's not allowed, but as simple a thing as a cell phone can be used to monitor a chronic disease. We can not only make consumer-friendly standard medical devices, like defibrillators, which are on sale today, but make a whole variety of devices capable of monitoring and reporting information about diseases to caregivers, to doctors, to family members, and to the individual.

We can do this using broadband internet. You can communicate any bit of information today but what you need is good bandwidth to do that. Those of you who access the internet realize this. As a country gets more and more broadband, the connectivity between homes, offices, and individuals becomes easier and more useful. The United States does not rank very well in this area. We are about 15th in per capita broadband penetration today. Countries like South Korea have major programs to give every citizen in the country broadband capability.

There are lots of different types of sensor today – blood sensors, skin chemistry sensors, respiratory sensors, and physical motion detector sensors. Is the individual moving around? Is the individual up? Is the individual active? There is personalized software that meets the needs of the individuals and is simple enough that they are not afraid to use. This is tailoring the software to get maximum interaction with the individual, maximum information transferred, for medication dispensing, to motivate exercise, a whole variety of topics. And lastly, there is collaboration between the major participants in the healthcare enterprise, the individual person you are monitoring, the doctor, and family caregivers. You want to have a communication channel between all three of these parties open and available, and we can do that with the sort of broadband connectivity we are talking about.

There is a bunch of Dick Tracy type of stuff associated with this and I brought my Dick Tracy watch to show you today. This is not an ordinary watch. This is called a Spot Watch, something that Microsoft put out that our researchers have been working on, with Microsoft, to enhance for healthcare delivery. What this watch does today is it accepts radio signals to give you stock prices, news, weather forecasts, and other information. Wherever you are, the watch receives the

information that you want, but that's not very exciting from a healthcare standpoint. What is exciting from the healthcare standpoint is you can also program this watch to give you alerts to take your medication, and in addition, it even has location sensors in it relative to sensors you can put in your home. So what happens is that the sensors detect where this watch is on a routine basis in the house. If you are walking around it tracks where you are walking; if you are going to the refrigerator, to the stove, if you are lying down in bed it will track that. So it allows someone else to remotely monitor your physical activity at the same time, all just with this watch. The data is all sent back to a PC and is relayed over the internet to a third party caregiver. That's the sort of gee whiz, Dick Tracy stuff you will see downstairs. It's real. It works. It's not on the market, and we will talk about why it's not on the market in a moment.

There are a couple of things that are really important here. There's a lot of technology involved in this. The baby boomers who are aging are one of the most tech savvy groups in the world. About 50 percent of them have bought items from the internet. They are not afraid of the PC. This sort of technology can be used as this generation ages going forward. The net result is not that they use the technology, not that it's cool; the net result is that it provides preemptive, preventative medicine and cuts the total cost of healthcare. In the CAST pavilion just ask the people there what they anticipate the savings in the trials that they have done so far are using that technology. That's the only rationale for this technology. It provides better healthcare at lower cost, and if you listened to Mr. Walker's comments, I think you recognize the precarious state we are in. If you didn't listen to his comments listen to my comment that if it costs more to buy someone healthcare coverage in the United States than the total loaded salary of an employee overseas. If we don't lower healthcare costs, they will be hired in some other country and not in the United States.

So what do we need to do? It's not just about developing the technology, it's about bringing the technology into the market. It's about providing the R&D dollars to bring the technology into the market. It's about providing fast track approval for this technology to bring it into the market. Currently in the United States, we don't have fast track approval to do any of this, but Europe does. If you look to see where most of the trials are going on today they are not going on in the United States. There are license and regulatory issues, issues of reimbursement. Many of you I am sure aware of the issue. Why don't we use email to communicate with doctors? Why do we have to go to the doctor's office? The answer is simple. The doctor doesn't get reimbursed from insurance unless you go to his office. He doesn't get reimbursed for giving advice over the internet. It makes a lot of sense to somebody; unfortunately it doesn't make any sense to me. There are many, many issues of this type, which is why many companies don't want to run trials in the United States because of liability concerns. If we get coordinated, if we can have a uniform method by which to get research and development dollars into developing technologies

which can help people live better lives in their homes at lower net cost to the medical system; I think we have got a chance to reverse some of those curves you saw in the earlier presentation.

The healthcare industry is an industry which has underinvested in information technology, not just here in the United States but generally around the world. It creates some great pieces of stand alone technology. As those of you who have had CAT scans or MRI scans know, we do a great job at introducing expensive pieces of equipment in this system, but we don't do a very good job automating the database and automating the communications between patient and doctor and family. What we are talking about here today is how to improve the communication between those three parties using very simple and straightforward technology to provide better care at lower cost. I think the need is obvious. You have seen all the numbers. We are looking at the distribution of elderly people growing over the next 10 or 20 years. We have to do something different. The current method is not sustainable. If you have to do something different then you have to think differently. What we are suggesting is to think differently by using technology in an entirely different way. About 85 percent of the medical costs are associated with 15 percent of the people, 15 percent of the people who are elderly and have chronic diseases. If we can figure out how to provide that 15 percent with much better care and much lower costs with the use of technology, we will all be farther ahead; not just for that 15 percent but for our country and the next generation growing up behind us. Thank you